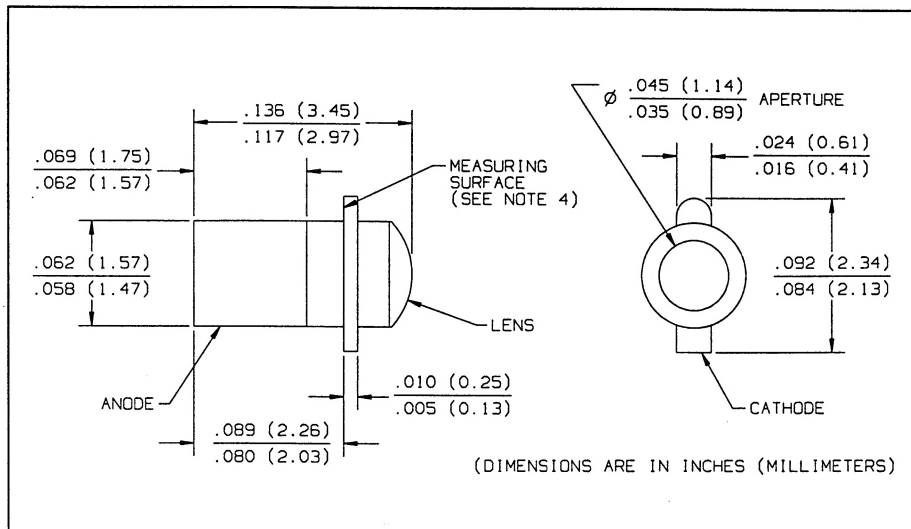
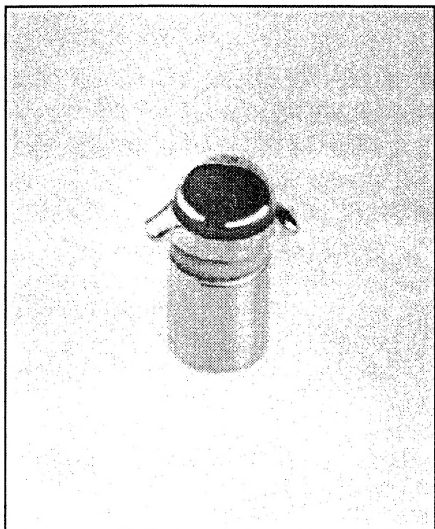


# GaAs Hermetic Infrared Emitting Diodes Types OP123, OP124



## Features

- Miniature hermetically sealed "Pill" package
- Enhanced temperature range
- Ideal for direct mounting to PC boards<sup>(1)</sup>
- High power output
- Mechanically and spectrally matched to the OP600 phototransistor and the OP300 photodarlington

## Description

The OP123 and OP124 series are high intensity gallium arsenide infrared emitting diodes mounted in miniature "Pill" type hermetically sealed packages. This package style is intended for direct mounting into PC boards.

## Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

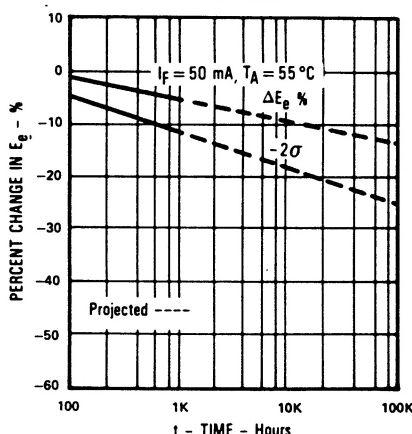
Reverse Voltage	2.0 V
Continuous Forward Current	100 mA
Peak Forward Current (2 $\mu\text{s}$ pulse width, 0.1% duty cycle)	1.0 A
Storage Temperature Range	$-65^\circ\text{C}$ to $+150^\circ\text{C}$
Operating Temperature Range	$-65^\circ\text{C}$ to $+125^\circ\text{C}$
Soldering Temperature (5 sec. with soldering iron)	$260^\circ\text{C}$ <sup>(1)(2)</sup>
Power Dissipation	150 mW <sup>(3)</sup>

### Notes:

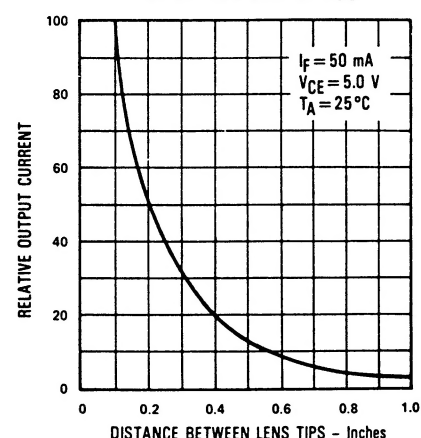
- (1) Refer to Application Bulletin 202 which reviews proper soldering techniques for pill-type devices.
- (2) No clean or low solids, RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering.
- (3) Derate linearly  $1.50\text{ mW}/^\circ\text{C}$  above  $25^\circ\text{C}$ .
- (4)  $E_{\theta(\text{APT})}$  is measured using a  $0.031"$  ( $0.787\text{ mm}$ ) diameter apertured sensor placed  $0.50"$  ( $12.7\text{ mm}$ ) from the measuring surface.

## Typical Performance Curves

### Percent Changes in Radiant Intensity vs Time



### Coupling Characteristics of OP123 and OP600



# Types OP123, OP124

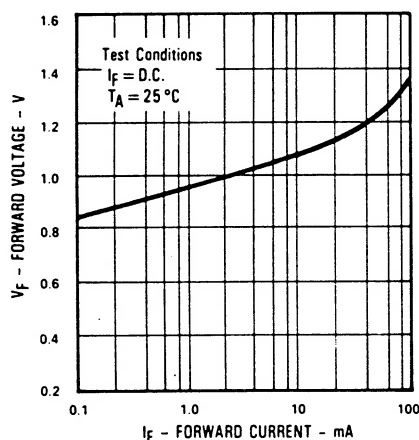
Electrical Characteristics ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
$E_e(\text{APT})$	Apertured Radiant Incidence	OP123 1.00			$\text{mW}/\text{cm}^2$	$I_F = 50\text{ mA}^{(4)}$
$V_F$	Forward Voltage			1.50	V	$I_F = 50\text{ mA}$
$I_R$	Reverse Current			100	$\mu\text{A}$	$V_R = 2.0\text{ V}$
$\lambda_p$	Wavelength at Peak Emission		935		nm	$I_F = 50\text{ mA}$
B	Spectral Bandwidth Between Half Power Points		50		nm	$I_F = 50\text{ mA}$
$\Delta\lambda_p/\Delta T$	Spectral shift with Temperature		+0.30		$\text{nm}/^\circ\text{C}$	$I_F = \text{Constant}$
$\theta_{\text{HP}}$	Emission Angle at Half Power Points		24		Deg.	$I_F = 50\text{ mA}$
$t_r$	Output Rise Time		1000		ns	$I_{F(\text{PK})} = 100\text{ mA}$ , $\text{PW} = 10.0\text{ }\mu\text{s}$ , D.C. = 10.0%
$t_f$	Output Fall Time		500		ns	

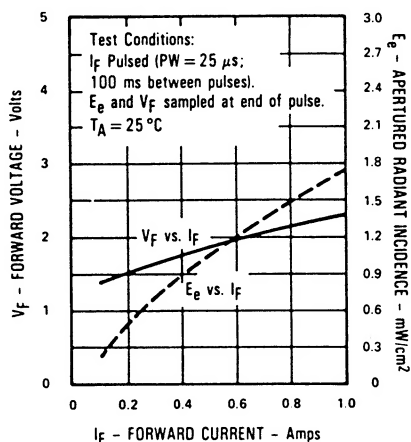
INFRARED  
EMITTING  
DIODES

## Typical Performance Curves

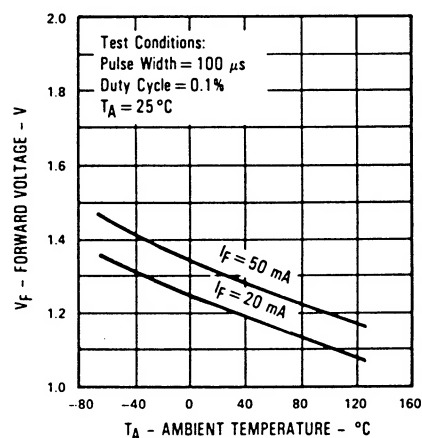
Forward Voltage vs  
Forward Current



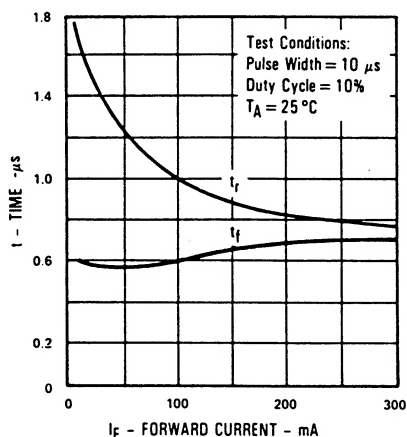
Forward Voltage and Radiant Incidence  
vs Forward Current



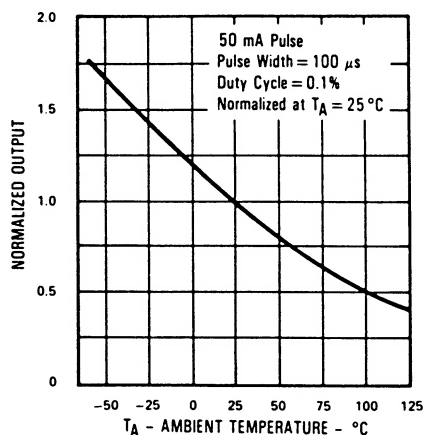
Forward Voltage vs  
Ambient Temperature



Rise Time and Fall Time vs  
Forward Current



Normalized Power Output vs  
Ambient Temperature



Optek reserves the right to make changes at any time in order to improve design and to supply the best product possible.

Optek Technology, Inc. 1215 W. Crosby Road Carrollton, Texas 75006 (972)323-2200 Fax (972)323-2396